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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,202	08/16/2001	Takashi Ipposhi	212812US2	9227

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EXAMINER
NGUYEN, JOSEPH H

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 09/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/930,202	IPPOSHI ET AL.	
	Examiner	Art Unit	
	Joseph Nguyen	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *25 July 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 5- 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over figures 17-21 of the acknowledged prior art (APA) in view of Yasue.

Regarding claim 1, (APA) discloses a semiconductor wafer comprising first and second semiconductor wafers 1, 3 having crystal orientation display sections...wherein said crystal orientation display sections are indicative of an identical crystal orientation in said first and second wafers and said first and second semiconductor wafers are bonded with said crystal orientation display sections. (APA) does not disclose nicks indicative of orientation formed on fringes. However, Yasue discloses on figure 1 nicks 23,24 indicative of orientation formed on fringes. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify (APA) by having nicks indicative of orientation formed on fringes for the purpose of precisely identifying the crystal orientation of the semiconductor wafer as taught by Yasue (col. 4, lines 34-35).

Regarding claim 4, (APA) discloses the first semiconductor wafer 1 is a wafer for a support substrate.

Regarding claim 5, (APA) discloses a semiconductor wafer comprising a first semiconductor wafer 1; and a second semiconductor wafer having a crystal orientation

display section ...wherein said first and second semiconductor wafers are bonded to each other such that a part of a main surface of said first semiconductor wafer is exposed to said crystal orientation display section of said semiconductor wafer, and printing is given to said part of said main surface of said first semiconductor wafer. (APA) does not disclose nicks indicative of orientation formed on a fringe. However, Yasue discloses on figure 1 nicks 23,24 indicative of orientation formed on a fringe. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify (APA) by having nicks indicative of orientation formed on fringes for the purpose of precisely identifying the crystal orientation of the semiconductor wafer as taught by Yasue (col. 4, lines 34-35).

Regarding claim 6, (APA) and Yasue together disclose the structure of claim 6.

Regarding claim 7, (APA) discloses the first semiconductor wafer 1 is a wafer for a support substrate, said second semiconductor wafer 3 is a wafer for an SOI layer, and an insulating film 2 is formed on a main surface of at least one of said wafer for the support substrate and said wafer for the SOI layer.

Regarding claim 8, (APA) discloses a semiconductor wafer comprising first and second semiconductor wafers 1, 3 having bulk structures, wherein said first and second semiconductor wafers are bonded with crystal orientations. (APA) does not disclose the crystal orientations shifted from each other. However, Yasue discloses on figure 1 the crystal orientations shifted from each other. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify (APA) by having the crystal orientations shifted from each other for the purpose of

precisely identifying the crystal orientation of the semiconductor wafer as taught by Yasue (col. 4, lines 34-35).

Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over (APA) and Yasue as applied to claims 1 and 8 above, and further in view of (JP9-246505).

Regarding claims 2 and 9, (APA) discloses substantially all the structures set forth in the claimed invention except the crystal orientation display sections shifted from each other by 45 degrees. However, (JP9-246505) discloses the crystal orientation display sections shifted from each other by 45 degrees (see Abstract of JP9-246505). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify (APA) and Yasue by having the crystal orientation display sections shifted from each other by 45 degrees for the purpose of improving the wafer bonding process of a semiconductor wafer.

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over (APA) and Yasue as applied to claims 1 and 8 above, and further in view H.Sayama et al.

Regarding claims 3 and 10, (APA) discloses substantially all the structures set forth in the claimed invention except a channel direction between a source and drain being parallel with a direction of a crystal orientation <100>. However, H. Sayama et al discloses on figure 4b a channel direction between a source and drain being parallel

with a direction of a crystal orientation <100>. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify (APA) and Yasue by having a channel direction between a source and drain being parallel with a direction of a crystal orientation <100> for the purpose of improving the current drivability of pMOSFET as taught by H. Sayama et al (See Abstract of H. Sayama et al).

Response to Arguments

Applicant's arguments filed 7/25/2002 have been fully considered but they are not persuasive.

With respect to claims 1, 5 and 8, applicant argues that either (APA) or Yasue teaches or suggests the "shifting" limitation in claim 1. However, by combining (APA) and Yasue in which figure 17 of (APA) is modified with nicks indicative of crystal orientations formed on fringes from Yasue (figure 1), the first and second semiconductor wafers of (APA) are bonded with said crystal orientation display section would be shifted each other. That is, it would make sense to have additional nick (notch) formed on the surface other than the surface on which the notch 1a (figure 17 of APA) is already formed, and thereby the first and second semiconductor wafers of (APA) would be shifted each other in a similar manner as figure 1 of the present application.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for

the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN
September 27, 2002

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800